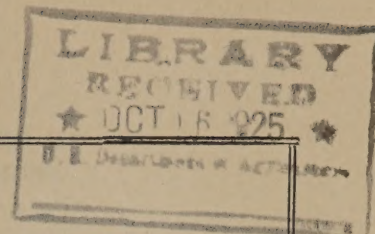


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COTTON - FERTILIZER

**Excerpts from 1924 Annual Reports of
State and County Extension Agents**

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U. S. Department of Agriculture**

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Brief No. 24

August, 1925

COTTON - FERTILIZER

For the year 1954, the amount of fertilizer used on cotton in the United States was 1,100,000 tons.

Produced by J. A. Jones, American Cotton Fertilizer Co., Inc., 1954. This report is a summary of the fertilizer requirements for cotton in the United States for the year 1954.

The total amount of fertilizer used on cotton in the United States for the year 1954 was 1,100,000 tons. This was a decrease of 100,000 tons from the amount used in 1953.

Approximately 1,000,000 tons of fertilizer were used on cotton in the United States for the year 1954. This was a decrease of 100,000 tons from the amount used in 1953.

August, 1954

Page 11

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Cotton - Fertilizer*

	Page		Page
Alabama		Mississippi (cont'd.)	
District agent, High.....	2	Walthall County.....	8
District agent, Binford.....	3	Warren County.....	8
District agent, Pearson.....	4	North Carolina	
Clay County.....	4	Anson County.....	9
Dekalb County.....	4	Bertie County.....	9
Houston County.....	5	Chowan County.....	9
Pickens County.....	5	Nash County.....	10
Arkansas		Wilson County.....	10
Fulaski County.....	5	Oklahoma	
Florida		State and district agents	10
Madison County.....	5	Pittsburg County.....	11
Georgia		South Carolina	
Baldwin County.....	5	Aiken County.....	11
Haralson County.....	6	York County.....	12
Kentucky		Tennessee	
Marshall County.....	6	District agent, Nichols.....	12
Louisiana		Leuderdaie County.....	13
East Baton Rouge County.....	6	Lincoln County.....	13
Richland County.....	6	Madison County.....	13
St. Tammany County.....	6	Texas	
Mississippi		Fort Bend County.....	14
Bolivar County.....	7	McCulloch County.....	14
Coahoma County.....	7	Matagorda County.....	14
De Soto County.....	8	Morris County.....	15
Iamar County.....	8		

Alabama

In order to put clearly before the farmers of our district the latest information we have on fertilizing cotton, corn, and hay, we decided at our group meeting that we would work out a uniform, simple demonstration of fertilizing the standard crops. This was done in order that the farmer might see the living, growing demonstration and finally harvest and weigh the results from each plot. This was done on a smaller scale in 1923 and proved very beneficial, but was not uniform. The demonstration for cotton is as follows:

*No attempt is made to cite all references to fertilizing cotton in this circular. Only selected extracts showing typical methods employed and results obtained in a number of States are included. Owing to differences in terminology used in various States and to other local conditions, the information contained herein should be reviewed by the State subject-matter specialist concerned before incorporating any part of it in the extension program for the State.

Alabama (cont'd.)

Plot #1	No fertilizer
" 2	400 pounds Auburn Minimum Recommendation
" 3	700 " " Maximum "
" 4	200 " average used fertilizer
" 5	400 " " " "

County agents used these for field demonstrations at which the farmers of the community and county noted the results. Finally, in most of the counties, they called men of the community together to pick and weigh the cotton.

To show the value of this work to a county agent, I am giving the following facts about Limestone and Franklin Counties:

In checking over the results from nine fertilizing demonstrations in Limestone County, Fred Stewart, county agent, finds that the average increase from Auburn Minimum, 200 pounds acid phosphate, 100 pounds nitrate of soda and 100 pounds kainite (400 pounds per acre), produced a net of \$18.17 more cotton per acre than the 200 pounds of average used fertilizers. The farmers of his county bought cooperatively and mixed 2,500 tons of fertilizer for cotton at 400 pounds per acre, each ton fertilizing five acres. This gave them 12,500 acres fertilized properly; 12,500 acres multiplied by a net gain of \$18.17 per acre shows a direct increase for the county of \$232,000. This represents about one-fourth of the acreage in cotton in Limestone County so it is possible to increase the income by the proper fertilization four times the above amount. I might say that the above work was responsible for a \$500 increase in pay for Mr. Stewart by the county commissioners' court. It has also brought about more appreciation on the part of both the farmers and business men of Limestone County for Mr. Stewart's work.

In Franklin County, the benefits showed an increase of \$14.80 per acre or a total amount of \$92,120 for the county.

These same data can be worked out for each county in the district, since a number of these demonstrations were put on in a uniform way in all the counties. It has surely sold "better methods of fertilizing cotton" to the farmers. J. T. High, District Agent, Northern District.

The adult work with cotton consisted of fertilizer and variety demonstrations. We have been emphasizing the use of home-mixed fertilizer and a heavier application and to do this a number of demonstrations were planned to bring out the practicability of this practice. A very outstanding demonstration combining a fertilizer and poisoning demonstration was conducted by County Agent Day, following a plan suggested by the district agent last spring.

It is apparent that the home mixture applied according to the Auburn method paid good returns. The extra high application costing approximately \$18.50 per acre, yielded at the rate of a bale of cotton per acre worth about \$125. The commercial mixture, too low in nitrogen and otherwise inadequate, yielded less than half. It also appeared that poisoning for boll weevil was profitable even though the season was unfavorable for the boll weevil. - E. E. Binford, District Agent, Northeast District.

Alabama (cont'd.)

As a result of farm tours, where farmers could see results of the Auburn method of fertilizing, and meetings held in the 14 counties in the district where this method was discussed, there were used in District No. 4 this year, 33,360 tons of Auburn method fertilizer which was all home-mixed at a saving of at least \$10 per ton. In 1923 the tonnage so used was 20,311 tons, which shows that it is getting results. The average increase in yield of cotton due to Auburn method of fertilizing was 344 pounds of seed cotton per acre which is about equal to the State average per acre. The average increase due to Auburn method of fertilizing corn was 15.9 bushels. - M. H. Pearson, District Agent, Southern District.

Cotton is the chief money crop of nearly all farmers in Clay County. Due to proper fertilization and few weevils this year, there has been an increase of 30 to 40 per cent over last year's yield. Farmers are fast being convinced that cotton can be made to yield a profit if fertilized properly and protected from insect injury. It has taken many meetings, many individual talks, many circular letters, and the like, to teach farmers these things.

But more farmers fertilized their cotton properly, bought poison and dust guns, in short, produced the crop in a more scientific manner, than ever before in the history of the county. Of course, the county agent was of material assistance in this. The result was a better crop.

Several farmers and club members are making a bale or more per acre. The psychological effect of this has been beneficial, as many despaired of ever again raising the crop at a profit in this section. - F. M. White, County Agent, Clay County.

Experimental evidence indicates that the Appalachian Plateau soils give highest return for fertilizer of any soil section of the State. In fact, an application of 365 pounds of fertilizer (recommended by experiment station) which cost \$5.50 last year gave a return of \$40 worth of cotton per acre over unfertilized plots.

Although late in the season when the agent took up the work, three fertilizer demonstrations on cotton were located, one each in the valley and on the mountain gave most interesting results. The demonstration on the farm of W. Ben Jones of Crossville showed 725 pounds of fertilizer, 400 pounds of acid phosphate, 300 pounds of nitrate of soda, and 25 pounds of muriate of potash. The total cost was \$12.60 which gave a return of \$83.50. The value of the increase over the unfertilized plots was figured on a basis of seed cotton at 10 cents per pound, which is equivalent to lint at 23 cents per pound and seed at \$45 per ton (present prices). An application of 200 pounds of nitrate of soda alone gave an increase of 335 pounds of lint, or a return of \$5.51 per dollar expended whereas acid phosphate alone at the same rate of application gave a return of \$4 per dollar spent.

On the farm of V. M. Brindly, in the valley, the Auburn minimum formula gave an increase of 310 pounds of seed cotton over unfertilized plots. - G. E. Riddell, County Agent, Dekalb County.

Alabama (cont'd.)

Our farmers are putting in orders through their county farm bureau for next year's fertilizer and my office is full of farmers every day asking help in planning their fertilizer needs for their cotton and practically all of them are using the general recommendations of the extension service. This work with fertilizer has been worth thousands of dollars to them and it has been the means of my reaching farmers that I could never get to cooperate with me before. It has helped them to increase their yield per acre and to save money on the cost of fertilizer.- J. H. Witherington, County Agent, Houston County.

The members of the cotton club conducted the fertilizer test, thick spacing, and put the presquare poisoning on the fertilized rows. These boys made from 200 to 400 per cent more than they did on the unfertilized rows.- F. A. Rew, County Agent, Pickens County.

Arkansas

After holding several conferences with the manager of the Arkansas Fertilizer Company of North Little Rock, the company agreed to conduct 15 single-acre cotton demonstrations, one in each organized community. The company gave 400 pounds of 12-4-4 fertilizer to each demonstrator to be used on one acre. The cash value of the fertilizer for one acre was \$8. Thus \$120 worth of fertilizer was contributed for this purpose. The only request made by the fertilizer company was that a record be kept by the farmers on the acre fertilized and the adjoining acre. In all the demonstrations except one, the fertilized acre has produced from 300 to 500 pounds more seed cotton than the unfertilized acre, while the unfertilized cotton has averaged about one-half bale per acre. The fertilizer seems to have made a net profit of \$20 per acre for the cotton demonstrators this year. All will use fertilizer next year.- James W. Vines, Negro County Agent, Pulaski County.

Florida

Not more than one-half of one per cent of the acreage planted to cotton was abandoned, and we produced one of the most profitable crops that has been grown in this county under weevil conditions. Our highest yield was 21,000 pounds of seed cotton produced on 16 acres. Four hundred pounds of 4-8-4 fertilizer was used per acre at the time of planting and 100 pounds of nitrate of soda per acre was used as a side dressing when the first squares began to form.- B. E. Lawton, County Agent, Madison County.

Georgia

Early in the spring, a campaign was inaugurated to have the farmer fertilize his crop liberally and with high-grade material. I was using a high-grade fertilizer of 12-4-4 analysis with the boys' cotton club; and notwithstanding a high-grade guano of this kind had never been used in the county before, 15 or 20 cars of this mixture were brought in and disposed of. Comparatively little of the low-grade fertilizer was used.- L. E. Swain, County Agent, Baldwin County.

Georgia (cont'd.)

Sixteen per cent acid phosphate and nitrate of soda has made decidedly the best showing this year for the Haralson County contestants and Cleveland-Wanamaker cotton stands far ahead. - H. J. Mosely, County Agent, Haralson County.

Kentucky

Better methods of fertilization, the use of manure, acid phosphate, and potash will be taken up in detail at meetings and by circulars and through articles to be published in the Tribune Democrat, the local paper, which gave such splendid cooperation in the cotton work this year to spread better fertilization information widely over the county in an effort to bring up the yield next year.

Sulphate of potash, manure, and acid phosphate gave the best results in the fertilizer tests conducted in this county. - Harry R. Cottrell, County Agent, Marshall County.

Louisiana

The club boys in East Baton Rouge Parish produced fertilizer cooperatively. The fertilizer and calcium arsenate were purchased through the purchasing department of the Louisiana Farm Bureau Association. By the cooperative purchase, the members saved \$20 per ton on the nitrate of soda and about \$6 per ton on the acid phosphate. Twenty-five per cent was saved on the purchase of the dust guns, and the calcium arsenate costs $12\frac{1}{2}$ cents per pound. Each cotton club member used 300 pounds of acid phosphate and 200 pounds of nitrate of soda per acre. - Irvin J. Heath, Club Agent, East Baton Rouge County.

We ran seven plats in fertilizing cotton this year. Planters adjoining those who use nitrate of soda this year will use it next year and those who used it on part of their places this year will use more next year. We did not have the check plats on all these plats, and accurate figures are impossible to give. On one plat with a check where 150 pounds of nitrate was used just after chopping, two rows on plat and two rows on the check of same length were picked. Just twice as much cotton was made where 150 pounds of nitrate was used. - G. D. Cain, County Agent, Richland County.

Where I carried on cotton demonstrations, I insisted on the land being well prepared, believing the old truthful saying that "A cotton crop is half made when the land is properly prepared for the seed bed."

The land was broken early and deep, then ridged up in $3\frac{1}{2}$ -foot rows and opened with a small shovel or a cotton planter and 300 pounds 16 per cent acid phosphate and 100 pounds nitrate of soda drilled to the acre. Where the planter had a fertilizer attachment to use, the seed was drilled immediately behind or at the same time of putting down the fertilizer distribution. Where no attachment was used for fertilizer distribution, the rows were dragged, and then the planter was run over the rows.

Louisiana (cont'd.)

A trial demonstration to test the use of bone meal (22 per cent P. 3N) as compared with acid and nitrate of soda, and 10-3-3 was used. Bone meal, 100 pounds to the acre and a side dressing of nitrate of soda at the rate of 100 pounds per acre was tried out. The nitrate gave a 10 per cent increase in first crop and second or top crop looks better but it is not yet picked or reported. One hundred pounds of 10-3-3 to the acre yields 50 per cent more than no fertilizer, while 100 pounds bone meal gives a 5 per cent increase over 100 pounds of 10-3-3, so we must not need potash for cotton but lime and bone meal may aid our production along with the extra 13 per cent of phosphate.-- O. G. Price, County Agent, St. Tammany County.

Mississippi

Fertilizer tests are run in similar manner to the variety tests, using the various amounts of fertilizer. Nitrate of soda is used almost entirely in these tests, though in years past, sulphate of ammonia has proved equally as good if not better. My tests for the past four years indicate certainly that we can profitably use more nitrate than we have been using.

We also find in connection with the fertilizer tests that nitrate should be applied early to cotton and close to the young plant or under the seed. This is governed by various conditions. Very early applications of nitrate also hasten the maturity of the crop. This is noticeable in first pickings over late applications.

In production tests, we have tried to use good practices which we think essential to profitable production. These were used on three large places, one of 520 acres, another 400 acres and another 375 acres. We also had various blocks of land in each community, running from 4 to 60 acres. The yields varied from 500 pounds of seed cotton per acre on the poorest to 7 bales on $4\frac{1}{2}$ acres of the best. The average of the plots outside the large farms were over three-fourths bale per acre and the average of the farms was slightly over six-tenths bale per acre. The 520 acres made 257 bales, the 400 acres made 248 bales and the 375 acres made slightly over one-half bale per acre. While this production is not large, it compares favorably with a county planting slightly over 375,000 acres in cotton and getting approximately 85,000 bales in 1924. In 1925, we plan to have one crop like this on every place in the county. - C. C. Smith, County Agent, Bolivar County.

Increasing cotton yields. - The problem of next greatest importance is that of increasing the per-acre yield of cotton for the county which is fully as high as that of the highest-yielding county in the Mississippi Delta. The average yield for the last five years has been slightly less than 200 pounds of lint cotton per acre, which will not sustain the operating cost of our present system of farming. This low yield of cotton is due to a variety of causes, some of which are poor drainage and poor soil. In an effort to increase these yields we have conducted five cooperative fertilizer tests, using nitrogen, the deficient element in our soils, at various rates. In these tests we have proved conclusively for two years that money spent for commercial nitrogen from the proper source is the best investment and gives greater returns than any other money put into the production of the cotton crop. This is especially true when nitrogen is added up to and including 30 pounds per acre. We have greatly stimulated the use of fertilizers through these tests. But even this does not completely solve our soil-fertility problem, especially on some of our soil that is extremely deficient in vegetable matter. - O. G. Steele, County Agent, Coahoma County.

Mississippi (cont'd.)

Reports from 26 farms, representing 1,129 acres in cotton which was worked under my instruction, showed a yield of 1,056,079 pounds of seed cotton or 300,518 pounds of lint cotton, or 935.4 pounds of seed cotton and 265.47 pounds of lint cotton per acre. The average yield per acre for these farmers handled in the usual way showed an average acre yield of 491.8 pounds of seed cotton and 157 pounds of lint. The properly fertilized cotton showed an increase of 69 per cent over the unfertilized cotton.

Four acres were used on C. P. Dockery's farm to demonstrate the use of fertilizers. Mr. Dockery did not believe that acid phosphate paid on his land. Four acres of land which was very uniform in fertility and character was selected for the demonstration. The acid phosphate used in connection with nitrate of soda paid \$4.16 for \$1.50 worth of acid phosphate used. The results from the use of 200 pounds acid phosphate alone over no fertilizer showed a gain of 142 pounds of seed cotton or a return of \$11.20 for \$1.50 worth of acid phosphate. One of the most striking features brought out in this demonstration, which was shown in all others is the hastening of maturity, which is such an important factor in producing cotton under boll weevil conditions. The use of nitrate of soda showed 58 per cent of the cotton open and picked on September 25, while only 20 per cent of the unfertilized crop was open and picked on September 25. Plot Number 1, which received 200 pounds of nitrate of soda showed $6\frac{1}{2}$ times as much cotton produced on September 25 as Plot No. 4, or the nitrate of soda showed an increase in production of 553 per cent above Plot Number 4 on September 25. This is very important when we have a heavy infestation of boll weevil. - G. C. Mingee, County Agent, De Soto County.

With 250 pounds of nitrate of soda and 300 pounds of acid phosphate, an average of 1,300 pounds of seed cotton per acre for the cotton club boys was harvested. This was about 800 pounds of seed cotton per acre more than the average farmers made over the entire county. - D. C. Morris, County Agent, Lamar County.

The need of higher yields per acre was deemed the most important phase concerning cotton in this section. In order to encourage higher production per acre, 134 club boys' demonstrations were carried out, using the most approved method of fertilization, cultivation, and insect control. One hundred twenty of these grew one acre of cotton each which produced 117 running bales or 100 bales of 500 pounds weight. Twenty-five per cent of these made over 1,200 pounds of seed cotton each. Over 50 per cent produced over 1,000 pounds of seed cotton each. The average yield of all those producing less than 1,000 pounds was 118 pounds seed cotton each. In some cases, the yields made by these demonstrations was double that grown under ordinary conditions on similar land. - Edgar E. Johnson, County Agent, Walthall County.

The agent's objective has been more cotton on fewer acres. We have sought to take to the farmers, through demonstrations, the best agricultural practices, and recommendations of the experiment stations, better varieties, thick spacing, thorough soil preparation, proper cultivation, fertilization and poisoning where necessary and where proper facilities are available. The largest per cent of profit has come through the use of fertilizers, although there have been very profitable increases on demonstrations where improved varieties have been used. - W. R. Lominick, County Agent, Warren County.

North Carolina

Fertilizer tests were conducted on two different farms, using several different sources of ammonia. Nitrate of soda as a source of nitrogen also made the largest yield again this year. Mr. E. C. Griggs on whose farm we conducted one of these tests was, before we commenced, a great believer in using cottonseed meal as a source of nitrogen. He used around 500 pounds of fertilizer per year, but after completing the first test, Mr. Griggs was convinced that nitrate of soda as a source of nitrogen was much better and this year he bought nitrate of soda altogether instead of cottonseed meal. After the results of this season he is more convinced than ever as these plots were conducted on the same plots as last year. - J. W. Cameron, County Agent, Anson County.

I put on a number of fertilizer demonstrations, trying to represent the different types of soils in various sections of the county as far as possible. This year has been a bad year for all tests on account of excessive spring rains and bad stands. Many soils which appear to be uniform and in normal years grow a bale of cotton or more per acre, have failed this year.

For the majority of the soils in this county, I feel safe in recommending 100 to 200 pounds of soda per acre in addition to the regular amount of fertilizer used. On the heavier soils, it seems that this may be used either at planting or after chopping, but on the lighter soils after chopping. From 600 to 800 pounds of 8-3-3 or 10-4-4 seems to be about right for the commercial fertilizer. I expect to carry on these demonstrations each year while I am in the county to determine the proper amount of fertilizer and soda for the various soils in different sections of the county. - B. E. Grant, County Agent, Bertie County.

From the fertilizer tests carried on during the past three years, the results have shown that a fertilizer containing 10 per cent of acid phosphate, 4 per cent of ammonia, most of which comes from nitrate of soda, and 3 per cent of potash pays best for the average loamy soils. For the sandy soils which are low in fertility and humus, a fertilizer containing 9 per cent acid phosphate, 5 per cent ammonia and 3 per cent potash makes a good fertilizing mixture. The amount varies from 500 pounds to 1,000 pounds, depending on the conditions of the soil. On the fertile soils, 600 pounds pays best. It has been the custom to apply nitrate of soda as a second application. This was generally applied during June and July. The agent has not encouraged this since we need an early and fast maturing growth under boll weevil conditions; however, where the soil is light, sandy and of a poor nature, it will sometimes pay to make a second application, but this should be applied early, at about the first thinning of the cotton.

The value of humus was well demonstrated on several farms this year. The weather was wet, and the cotton grew slowly. Where there was plenty of humus in the soil, due to stable manure or the turning under of cover crops, the land stayed in better condition and the fertilizer was not washed away. In most of the demonstrations, the cotton doubles the yield due to this additional humus. - N. K. Howell, County Agent, Chowan County.

North Carolina (cont'd.)

One boy who wished to grow ~~two~~ ^{two} acres of cotton as a club project, was advised to use a pedigreed strain of Mexican Big Boll cotton. Also that he mix his own fertilizer which he did, buying the raw materials from the local dealer. His mother also planted the same variety of cotton seed on the adjoining two acres. The soil fertility of the four acres was practically the same as the field had been handled as one previous to this test. The land was prepared and the cotton planted, cultivated and harvested in the same way, no difference whatever being made in the two plats, other than the kind and method of application of the fertilizer. The boy applied his home-mixed fertilizer at the time of planting and the mother applied a part of the ready-mixed fertilizer at the time of planting and the remainder as a side dressing. The boy's fertilizer cost him \$10 per acre and the mother's cost \$21 per acre. The boy made 592½ pounds of lint cotton per acre; the mother made 480½ pounds of lint cotton per acre. Of course, the boy paid cash for his and his mother's was bought on time. Both the raw materials and the mixed goods were bought from the same dealer and on the same date and the boy was advised by his dealer that he could not mix these raw materials satisfactorily.

We have another record somewhat similar in which the boy planted one acre of Cleveland cotton. His raw materials and mixing cost him \$11.50 per acre. His father's cost him \$14 per acre. The boy made 569 pounds of lint, the father made 308 pounds. There was one decided difference in the handling of the cotton in that the boy attempted to leave two or three stalks every 6 to 8 inches in the drill, which was quite a bit thicker than his father's. His father notifies me that he will mix his fertilizer himself next year.— Harry Mess Parker, County Agent, Nash County.

We are somewhat in the habit of using a standard fertilizer of about 8-3-3 quality with from 600 to 800 pounds per acre. However, we have gotten good results this and other years by mixing our fertilizers, and we find that a formula of about 10-4-4 with a more liberal application is economical. — B. F. Ferguson, County Agent, Wilson County.

Oklahoma

The first demonstration that will be discussed is the use of fertilizer. Noah Hilburn of the Lodi community reports 1/5 more cotton raised on the plats using fertilizer than on those where it was not used. Mr. Erwin, a neighbor, who was living on a poor, badly washed farm gathered twice as much cotton from the area which had been fertilized as he did from the unfertilized plats. Mr. Kelly of the Stringtown community reports fifty per cent more cotton raised on the fertilized plat. These farmers all live at Red Oak in the lower section of the county. They used a carload this year. They are absolutely sold to the proposition. — T. A. Milstead, District Agent, Southeast District. — W. R. Shelton, State Agent.

Oklahoma (cont'd.)

Some very far-reaching demonstrations have been completed this year in the use of fertilizer. Results in most every case have shown 1/2 to 100 per cent increase both in cotton and corn. The fertilizer that shows up the best in cost, considering the net proceeds has been the use of acid phosphate, proving conclusively that it is the one necessary plant food most lacking in Pittsburg County. One car of limestone was shipped into the county this year and up to present, one of the limestone crushing companies has offered four cars to four different neighborhoods in Pittsburg County free of charge to the community paying the freight on it. Two of the cars have already been assigned. One in the Pittsburg community, the other at Savanna. A number of requests have already reached the county agent's office asking that acid phosphate be bought cooperatively for next year's use. One demonstration, carried out on the Allen farm south of McAlester to get a stand of sweetclover, with the use of lime has proved successful. - E. H. Houston, County Agent, Pittsburg County.

South Carolina

Nitrate of soda demonstration on cotton.

Plot 1	1 1/2 acre	No side dressing, 292 pounds seed cotton.
" 2	1/2 "	50 pounds soda, side dressing after chopping, 416 pounds seed cotton.
" 3	1/2 "	100 pounds soda side dressing after chopping, 442 pounds seed cotton.
" 4	1/2 "	150 pounds soda side dressing after chopping, 440 pounds seed cotton. - Agronomist's report.

Aiken County.

The results of the cotton-variety test carried out by John J. Blair, farmer and ex-county agent of York County are shown in the following:

<u>Variety of cotton</u>	<u>Yield per acre</u>
Edgcombe Cleveland.....	861
Wanamaker Cleveland.....	924
Piedmont.....	1,025
Mexican Big Boll.....	840
Cook 10-10.....	1,029
Lightning Express.....	1,053

<u>Kind of fertilizer used</u>	<u>Pounds per acre</u>	<u>Yield per acre</u>
No fertilizer.....	---	600
16 per cent acid phosphate....	600	620
18 per cent nitrate.....	300	540
8-3-3 A. A. Fertilizer.....	500	660
Acid, soda and potash.....	500	850
Acid, soda and potash.....	1,000	1,010
Acid and soda.....	1,000	860

The above test was carried out on heavy clay soil. Results were greatly modified by adverse seasons. Following is a fertilizer test carried out by M. L. Williford, Rock Hill. This was carried out on a typical sandy soil. Cotton was planted May 2, in 3 1/2 foot rows, 8 inches in drill, and 3 to 5 stalks in a hill.

South Carolina (Cont'd.)

<u>Kind of fertilizer used</u>	<u>Pounds per acre</u>	<u>Yield per acre</u>
8-5-3.....	134	645
201 pounds acid		
102 " soda		
102 " kainite.....	405	1,221
102 " acid		
201 " soda		
102 " kainite.....	705	1,200
450 " acid		
150 " soda		
102 " kainite.....	702	1,080
No fertilizer used.....		840

Dry weather affected this demonstration so that results are hardly reliable. Results on the third demonstration of fertilizer have not yet been received. - E. W. Johnson, County Agent, York County.

Tennessee

Cotton is the one big cash crop in west Tennessee. In certain limited sections other crops may take the major place on the farm; however, practically every farmer grows cotton, and in the past a great majority of them depended entirely upon cotton.

Realizing that the above is true and that everything done must bear a close relationship to cotton, we have attempted to install a permanent system of diversified farming with cotton as the main cash crop. The fact that the boll weevil did heavy damage last year was a great aid to us in getting work done along this line. To start this work, we put on a cotton production and boll weevil control campaign, with very satisfactory results. The result was that a much larger amount of fertilizer was used than ever before. The mixture advised was 100 pounds nitrate of soda and 200 pounds acid phosphate. In practically every case, good results were obtained. I believe I am safe in saying that the use of fertilizer increased the yield 300 pounds of seed cotton per acre over unfertilized cotton. This I know has been averaged over some counties, and will, I believe apply equally to the entire district. I would estimate that about 1,500 to 1,750 tons of acid phosphate were used in west Tennessee. From present indications, the amount to be used in 1925 will probably be an increase of $33\frac{1}{3}$ per cent over 1924. Not only was more fertilizer used than usual but better seed and better cultivation also. - H. S. Nichols, District Agent.

The farmers of this county have had little experience in the use of fertilizer. In the first meetings held with the farmers, the use of fertilizer on cotton was encouraged. The use of 100 pounds of nitrate of soda and 200 pounds of acid phosphate was recommended. Coöperative purchase of fertilizer was made through the fertilizer committee of the farm bureau. Eighty-six farmers used fertilizer this year for the first time. One thousand acres of cotton were fertilized and splendid results were secured from its use. From boll counts made on fertilized and unfertilized fields, an estimate of 420 pounds increase was obtained on the fertilized fields. Because of the heavy boll weevil damage to the 1923 cotton crop, the farmers of the county were very much interested in getting the best available information on the growing of cotton under weevil conditions. In the "Cotton Production Boll Weevil Campaign" for West Tennessee, three meetings were held in the county. In these meetings,

Tennessee (cont'd.)

Dr. Lloyd of the development bureau of Memphis gave the farmers valuable suggestions on growing cotton under weevil conditions.

J. A. Partain of the Arp community obtained a yield of 1,400 pounds of seed cotton per acre on a 10-acre demonstration. He kept an account of his labor in producing the crop and counting the cost of the seed, fertilizer, labor, and rent of land, his cost of production was 9 cents per pound of lint cotton. Showing the value of nitrate of soda on cotton, R. P. Thompson of the central community increased his yield 300 pounds of seed cotton with the application of 200 pounds of nitrate of soda per acre. B. F. Blizzard of the Glimp community increased his yield 280 pounds per acre with an application of 100 pounds nitrate of soda per acre. The use of better seed and a heavy increase in the amount of fertilizer used will be the result of the cotton demonstration. - E. B. Wright, County Agent, Lauderdale County.

J. D. Hamilton, Cash Point community club, Ardmore, had a rather thin piece of land and I advised the use of nitrate of soda or a fertilizer running high in nitrogen. He used a 10-4-4 fertilizer and while he made a half bale to the acre, he thinks he would have made more cotton with a 10-2-2 fertilizer which he was accustomed to using. His cotton was severely damaged by the drouth in early September. I think the lower grade of fertilizer would have given him ^{less} stalk which possibly would have produced more cotton on less water. - C. P. Barrett, County Agent, Lincoln County.

We have been able to get some of the negroes of the county to use fertilizer before this year but the demonstrations put on by the boys in the different communities will cause them to use fertilizer where they are able to buy it or where they can get the landlord to furnish it.

J. W. Williams, Bells, Route 1, states that he got 45 bales of cotton from 45 acres of land. This was well-rested land; it had been in Japan clover and redtop for four years, and this crop had been pastured some each year. Last fall Mr. Williams edged this land up with the turn plows, left it that way all winter, and in April he disked the land until he had a fine seed bed. Ridges for the cotton were made, and 300 to 400 pounds of fertilizer were drilled right down the top of the ridge. Delfos cotton was used. Mr. Williams is a strong advocate of fertilizer and will use it under all his cotton in 1925.

Ed McLeary, Jackson Route 6, is making one-third more cotton on the same land that he used for cotton last year. He says that he will make 500 pounds to the acre more than his neighbors who would not use fertilizer.

N. T. Mayo, Jackson Route 2, would not use fertilizer this year on any extensive plan. I got him to allow a few of his negroes to try two acres each in order to see if it would pay him. The negroes made just twice as much to the acre where the fertilizer was used. They made one-third of a bale where they used no fertilizer and two-thirds of a bale where they used it. Mr. Mayo has stated that if a negro will not use fertilizer next year, he might as well move now because he is going to fertilize every acre of his cotton.

R. E. Henderson, Jackson, Route 6, says that he made just two bales where he made one in 1923. The main cause is the fertilizer used. It looks now as though Madison County will use 400 to 500 tons of nitrate of soda this year where it used but 225 last year. - Judd Brooks, County Agent, Madison County.

Texas

Cotton fertilizer demonstrations: There were five demonstrations in five communities in which 10-4-2 and 10-0-0 fertilizers were compared on cotton. The soils on which these demonstrations were conducted were black hog-wallow prairie and gray sandy loam of rather low fertility. Three hundred pounds per acre were applied in each case. There was an increase in yield of 20 per cent on the black land and 35 per cent on the sandy loam soil. Apparently the low percentage of potash in the fertilizer was not needed since we were unable to make any distinction between plots to which the complete fertilizer was applied as compared with plots to which only nitrogen and phosphate was applied.

A late, wet spring delayed planting while a drouth that lasted from June 30 to late September undoubtedly reduced the effect of the fertilizers much below what could be expected in a normal season.

The demonstrators appear to be well pleased with the showing made, and I anticipate more extended use of fertilizer another season.

Fertilizer being entirely new to the farm experiences of this section, the matter of applying it was not an easy undertaking as no distributors could be found nor were any to be had from implement dealers in Houston. We finally distributed it by using a one-row cotton planter. Several types of these had to be tried before we could get one that would distribute evenly and not choke up. - S. A. McMillan, County Agent, Fort Bend County.

On a fertilizer test made on five acres of cotton near Rochelle, by T. S. Burk, an increased yield of approximately 200 pounds of seed cotton was shown per acre, by the $2\frac{1}{2}$ acres of cotton as compared with the $2\frac{1}{2}$ acres of unfertilized acres of cotton. Mr. Burk applied 250 pounds of 12-0-4 fertilizer per acre. The fertilized cotton grew off better than the unfertilized cotton, set more bolls, and the bolls on the fertilized were larger than those on the unfertilized. - G. E. Ehlinger, County Agent, McCulloch County.

Mr. Louie Nygard, Midfield, carried on a fertilizer demonstration with cotton. Mr. Nygard says that several of his neighbors laughed at him when he was hauling fertilizer from the station and told him that he was wasting his time. He invited these same men to come and look at his cotton when he was picking it. After looking at the fertilized plot these men said that there must have been some difference in the soil but they were soon convinced that the soil was the same and that the fertilizer was the cause for the difference, which was twice as much seed cotton on the land that was fertilized as on the land that was not fertilized. These men will use fertilizer in 1925. At first, it was very difficult to get Mr. Nygard to carry on this demonstration as he felt it would not pay him. He is well pleased with the result and will fertilize all of his cotton next year. These two fertilizer demonstrations will stimulate the use of commercial fertilizer in the Midfield community which is very essential as the soil is a light sandy loam. - L. A. Pierce, County Agent, Matagorda County.

Texas (cont'd.)

Fifty farmers in Morris County entered the local contest and cooperated with the agent in putting on fertilizer demonstrations. The average yield from these plots was 300 pounds of lint cotton per acre or about three times as much as the average yield for the county. The highest yields for the county, the kind of fertilizers and amount used per acre, and the dates of application are as follows:

Highest yield

200 pounds cottonseed meal
200 pounds acid phosphate
200 pounds 12-4-4
60 pounds nitrate of soda.....May 6

100 pounds nitrate of soda
80 pounds acid phosphate.....July 12

Total yield of 8,254 pounds of seed cotton which ginned 3,196 pounds of lint. There were five acres in the plot.

Second highest yield

200 pounds nitrate of soda
200 pounds acid phosphate.....April 15
Total yield 4,410 pounds of seed cotton which ginned 1,674 pounds of lint.

This plot consisted of four acres.

Third highest yield

200 pounds nitrate of soda
200 pounds acid phosphate.....April 28
Total yield was 5,220 pounds seed cotton which ginned 2,038 pounds of lint.

This plot consisted of five acres.

The other demonstration made in this connection was the effect of fertilization on maturity. The cotton that was fertilized was a little over 60 per cent open at the time of the first picking while the cotton which received no fertilizer was only slightly over 45 per cent open at the first picking. The average increase in yield due to fertilization in other demonstrations was 73 per cent. - W. R. Morgan, County Agent, Morris County.